



**Minuteman
Repeater
Association**

**The
Minuteman**



Volume 52 Number 2 November 2022

The Minuteman Repeater Association is a non-profit organization providing communications infrastructure and volunteers for community and emergency events.

Membership Meeting: Wednesday, 16 November 2022 ~7:30—9:30 pm

Build a 10M Moxon Antenna — John Portune, W6NBC

This is a Hybrid meeting: New England SciTech + ZOOM

(Directions to New England SciTech on Page 11)

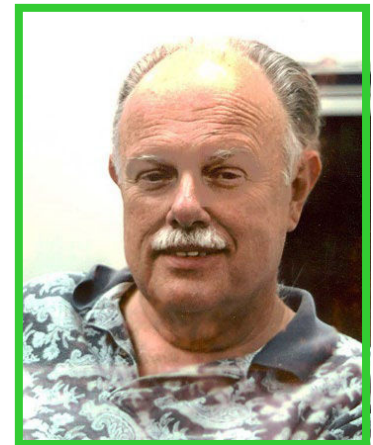
Members: log into your account on MMRA.ORG to obtain the ZOOM info.

Non-members: send an email to contact@mmra to request the ZOOM info.

This is a great project for a new ham wanting to experience the coming peak of Sunspot Cycle 25. Also, for experienced hams, it is easily extended to lower HF bands. And it is excellent for portable and field day operation.

John, W6NBC, is a native of Los Angeles, CA. He was licensed in 1965, and received his Extra in 1972. He also spent ten years as a resident of the UK as MØGCK.

Receiving his Bachelor's degree in Physics from Oregon State University in 1960, he is a retired TV broadcast television engineer/instructor at KNBC Ch 4 Los Angeles and Sony Broadcast, San Francisco. He also holds commercial licenses for GROL and General Radio Telegraph.



John is a prolific author, with over 25 articles in QST to date, along with other magazines. He gives frequent free radio club Zoom presentations and live talks at ham expos. Active on HF, VHF, UHF – SSB, FM, digital modes, and satellites, his “other” interests are steam railroading, pipe organs, and sushi. He is married to KF6OEB, has 3 children and 12 grandchildren +.

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About the Minuteman Repeater Association

MMRA Control Operators Responsibilities

<https://www.mmra.org/MMRACOPolicy-March2019.pdf>

The Minuteman Repeater Association (MMRA) is dedicated to Amateur Radio and public service. The MMRA maintains a large system of repeaters in Eastern Massachusetts.

The MMRA meets each month from September to June. Meeting times, locations, and talk-in frequency vary and are announced in this newsletter and on weekly nets. Meetings are open to all interested parties. Guest speakers and programs of general interest occur in September, November, January, March, and May. The intervening meetings are also open to all members and are for general business.

The Minuteman newsletter is emailed one week before each general interest meeting. Members are encouraged to submit articles: send to the editor at newsletter@mmra.org. The deadline for articles is the last Friday of the month preceding the meeting.

Each Tuesday evening at 8PM the MMRA links most of the repeaters for an open net. The topic is "Technical Information and Other Stuff". Join us!

Membership in the MMRA is open to all radio amateurs. Annual dues are \$25 per individual or \$35 per family. See our website for details.

Contact information is listed on the top of the last page of this newsletter.

No part of this newsletter can be copied or posted elsewhere without prior approval from the club.

MMRA QRM Policy

MMRA members and all other operators are strongly encouraged to report repeater activity that does not abide by Part 97 rules or accepted amateur radio practice to the board of directors at contact@mmra.org or via other means.

The most effective way (and probably the only effective way) to deal with an individual causing QRM is to NOT engage that individual on the air. Please include the time and date of any incident.

Repeater and Frequency Information

Band	XMTR Location	Freq	PL	Call	Linking To:	
					Hub 1	Hub 2
10m	Marlboro East	29.680	131.8	W1MRA	PTL	PTL
Linked to 146.79: 9am-3pm every day						
6m	Marlboro East <i>Remote receive Marlboro West: PL=100</i>	53.810	71.9	W1BRI	PTL	PTL
2m	Brookline	145.160	na	K1MRA	D-Star (REF050C)	
	Belmont	145.430	146.2	KC1CLA	PTL	FTL: DARI
	Mendon	146.610		K1KWP	FTL	PTL
	Quincy	146.670		W1BRI	PTL	PTL
	North Reading	146.715		KC1US	PTL	PTL
	Weston	146.790		N1BE	PTL	PTL
	Boston <i>Remote receive in Brookline Boston: PL = 127.3</i>	146.820		Linked to 29.68: 9am-3pm every day		
	Billerica	147.120		K1BOS	FTL	PTL
	Marlborough	147.270		W1DC	PTL	PTL
				W1MRA	PTL	PTL
1½m	Marlborough	223.940	103.5	W1MRA	PTL	PTL
	Quincy	224.400		N1KUG	PTL	PTL
	Weston	224.700		N1NOM	PTL	PTL
	Burlington	224.880		KC1US	PTL	PTL
70cm	Lowell	442.250	88.5	W1MRA	FTL	PTL: 446.775
	Weston *	442.700	88.5	N1DCH	Network Hub 2 (PTL to Hub 1)	
	North Reading <i>System Fusion</i>	446.775	88.5 Linked 71.9 Local	W1DYJ	FTL [88.5]	PTL [88.5]
	Marlborough	448.225	na	W1MRA	D-Star (REF050C)	
	Hopkinton <i>System Fusion</i>	449.575	88.5 Linked 71.9 Local	W1BRI	FTL [88.5]	PTL [88.5]
	Marlborough *	449.925	88.5	W1MRA	Network Hub 1	
33cm	Boston *	927.0625	D244	K1RJZ	PTL	PTL
	Marlborough *	927.700		W1MRA	PTL	PTL
PL out = 131.8						
Marlborough		144.390	none	W1MRA	APRS Digipeater	
???		145.630	146.2	W1MRA	Fox Box	
*Internet	HUB1- 449.925: IRLP node 4133 / Echolink node 4133 Connected to Echolink NEWENG2 conference (9127) for TIAOS net.					
	HUB2 - 442.700: IRLP node 4136 / Echolink node 4136 Connected to 220 Reflector 9124 on Tuesdays					
	927.0625: IRLP 4977		Normally linked to the NE900 Reflector, 9125. Linked to MMRA via “NEW-ENG2” node 9127 for the TIAOS net.			
	927.700: IRLP 4978					

Notes: FTL = Full Time Linked (or default state) PTL = Part Time Linked (on schedule or demand)
Note — a repeater can be linked to only one Hub at a time.

President's Corner ~ David Hornbaker, N1DCH

Greetings and Happy November!

Billerica Antenna Install: The new antenna is installed! Thank you to Bob – K1IW and his team for the hours of work and many planning meetings. (See the article later in this newsletter for all those who helped.)

Prudential Center Antenna Move: I would like to thank everyone that participated in the vote to approve the money for the antenna move. The measure passed 125-3. We expect the move to happen by the end of November.

Note that this is not just a move. The cost to move the existing antenna is the same as removing it and replacing it with a new one. MMRA purchased the equivalent of a DB222 2-bay dipole array, and this is the antenna that will be installed at the new location. It didn't make sense to keep the ~ 10-year-old amateur-grade antenna. A 4-bay dipole exceeds the allowed height which is why we are using the shorter 2-bay.

The old location was on the North side of the building on the roofline, obstructed by the penthouse and other structures located on the roof. The new location is about twenty feet higher than the old and is less obstructed in all directions, especially South.

November Membership Meeting: Guest Speaker John Portune – W6NBC: John's topic will be "Build a 10-meter Moxon Antenna"

In person at New England Sci-Tech in Natick [Directions](#) Meetings are a great place to meet and greet your fellow hams and to welcome our new members. Bring a friend, you do not have to be a member to attend.

Via Zoom: All MMRA meetings are also available via Zoom. The Zoom code is available to members on <http://www.mmra.org>. If you need assistance getting connected contact us at contact@mmra.org. If you are not a member, you can request the meeting code via email at contact@mmra.org.

VE Exams: The November VE Session will be held on Saturday, November 19 at 9:00 AM, at City Church Marlborough in the Shoebox Building (adjacent to Kelleher Field), 72 Jefferson Street 2nd floor, Marlborough, MA 01752 [Directions](#). Walk-ins are welcome. Please remember to bring a State ID, your FRN, and if upgrading, an Official copy of your current license. For more information, contact Ron – WO1E at ve@mmra.org or wo1e@mmra.org.

Membership renewal: All MMRA memberships expired on August 31. Please check your profile and if your membership expired in 2022, please renew. Renewals may be done on the website, or you can mail your renewal to Minuteman Repeater Association, PO Box 669, Stow, MA 01775-0669. Please allow 7 days for us to process your renewal. Please allow 14 days for renewals that are mailed. While you're on the website (<https://www.mmra.org>) checking your expiration date, please verify your email address. If your membership expired and has not been renewed, this is the last newsletter you will receive.

Tuesday Net: Join us Tuesday nights at 8:00 PM for our weekly Technical Information and Other Stuff (TlaOS) net. There will be a lively discussion on all sorts of HAM issues, including equipment, antennas, software, repeaters, and other stuff. The main purpose is to test our ability to link up the repeaters in case of an emergency or, to support an event like the Boston Marathon. You can also join via EchoLink if your radio is a little under the weather. See below for more information.

You can find out more information about how and when the repeaters are linked on the website (https://www.mmra.org/repeaters/repeater_linking.html).

Please remember to keep your profile up to date, especially if your email changes. Note that if your callsign changes, send email to contact@mmra.org and we will update your callsign in the database.

21 September 2022 Membership Meeting ~ Minutes

Called to order @ 7:31 PM at New England Sci-Tech, Natick

Bob Phinney - K5TEC - spoke on the Big E event where Ham Radio will be on display to the General Public. While Ham Radio is involved in so many different activities like Public Service, Emergency Communications, DXing, Experimenting, teaching and Building Equipment to name a few, the highlight event at the Big E will involve a link with the Astronauts on the International Space Station that takes a year or two in planning to achieve. For most of us this is a once in a lifetime event to experience. For more detailed information on the Big E Ham Radio festivities please go to <https://www.arrl.org/news/amateur-radio-takes-center-stage-at-the-big-e> .

Jason Peardon – W1HFP – MMRA Secretary asks all of us to make sure our current email address is listed on our online profile. This is important and is asking for our help.

Repeater Status

Bob DeMattia – K1IW who was unable to attend provided the following update:

- o Billerica TX keying RX. Output tone changed to 162.2 to avoid key-up. Problem persisted for about ten days, but it not currently occurring.
- o Temporary DR1X running in Weston for 146.79.
- o New Weston repeater has arrived.
- o New Billerica antenna planned install date October 4.
- o Prudential antenna must be moved sometime in October-November.
 - o Will be replaced with a new antenna rather than just relocating.
- o No output tone on North Reading
- o All other systems running normally
- o Need volunteer Tower Climber with proper safety equipment

VE Exam Session Ron Rothman – WO1E – is the VEC for the MMRA

Next exam session is on Saturday, October 15th at 9:00 AM at the City Church in Marlborough. The street address is 72 Jefferson Street, 2nd Floor. Test takers must have a photo id and FRN # from the FCC. SS#s cannot be used at the exam site. Please contact Ron at WO1E@mmra.org with questions or concerns about the exam session.

Upcoming Meetings

October 19, 7:30 pm – Business Meeting

New England Sci-Tech & Zoom Teleconference

November 16, 7:30 pm – Build a 10-meter Moxon Antenna

John Portune – W6NBC

New England Sci-Tech & Zoom Teleconference

December 21, 7:30 pm – Business Meeting

New England Sci-Tech & Zoom Teleconference

January 18, 7:30 pm – The "New" FCC RF Exposure Rules: A Practical Methodology

Larry Banks – W1DYJ

TBD & Zoom Teleconference

21 September 2022 Membership Meeting ~ Minutes, cont'd

February 15, 7:30 pm – Business Meeting
TBD & Zoom Teleconference
Tuesday night, 8:00 pm (year long)
Technical, Information and Other Stuff Net
MMRA Linked Repeaters

Note: The business portion ended at 7:51 PM

Presentation by Leandra MacLennon – AF1R – Digital Modes Beyond FT8

The digital modes discussed were keyboard to keyboard forms of communication. Presented were RTTY, PSK31 Domino, Contestia, Thor, MFSK, Hellschreiber, WinLink and Vara.

For more information on PSK go to: <https://bpsk31.com/about/> .

For more information on Contestia go to: <http://www.oliviamode.com/Contestia.htm> .

Hellschreiber Club at: <https://sites.google.com/site/feldhellclub/Home>

Getting started with digital modes — download the App called FLdigi and read the beginner guide at:

<http://www.w1hkj.com/beginners.html>

ARRL Book — Get on the Air with HF Digital, 3rd edition (make sure you get the 3rd edition):

<https://home.arrl.org/action/Store/Product-Details/productId/2003745875>

RTTY contest calendar: <https://www.rttycontesting.com/records/>

ARRL Digital Bulletins: <http://arrl.org/digital-transmissions>

Monthly ARES drill: Ask Don Rolph, AB1PH@arrl.net, to be added to the email list

How to get started with Winlink — I have written a set of instructions to get started with Winlink, send me an email to get the instructions: AF1R@arrl.net

Weekly Winlink drill, learn more about the features in Winlink:

https://www.emcomm-training.org/Winlink_Thursdays.html

VarAC: <https://www.varac-hamradio.com/>

Leandra's email address is leandra@leandramac.com for further help. See the next page for some of Leandra's slides.

Meeting Attendees - At New England Sci-Tech

Dave Hornbaker, N1DCH; Deborah Horton, N1NVJ; Ken Horton, KA1GFN;
Troy Lefebvre, KC1RUC; Daniel McEleny, AC1JL; Jason Peardon, W1HFP;
Leandra MacLennon, AF1R; Stephen Babbitt, KC1LPZ; Reed Prior, W1TF;
Jonathan Traum, K1BTZ; Bob Phinney, K5TEC; Larry Banks, W1DYJ

Zoom Meeting Attendees:

Kevin W Paetzold, K1KWP; Dan Long, N1DFL; John Spencer; WA1MDD; Howard Shpegel, AC1MN;
Roger Coulson, WA1NVC; Larry Vidoli, W1LSV; Ken Peluso, KC1PFS; Bill McIninch, KA1MOM;
Glenn Axelrod, KC1HPZ; Glenn Small, KV1GS; John Iwuc, KB1VXY; Bob Evans, N1BE

Meeting Adjourned at 9:04 PM

Respectfully Submitted by Stephen M Babbitt – KC1LPZ – Clerk

21 September 2022 Membership Meeting ~ Minutes, cont'd

Move beyond FT8

How to have a real conversation using the digital modes

Leandra MacLennan, AF1R
September, 2022

FT8

- FT8 has been a revolution to amateur radio HF
- The Good:
 - Does not require extensive skill training (compare to CW), great mode for new hams
 - Single watering hole on each band
 - Silent (does not disturb other family members)
 - Extremely robust mode
 - Less than 5 minute commitment needed
 - No need to figure out what to talk about

FT8

- The Bad:
 - Single frequency, difficult to make contacts when it is busy
 - The hams on FT8 are not on SSB or CW
 - Long time to make and confirm a contact
 - Computer must be synchronized to an accurate time source
 - No skill required, lack of excitement and challenge
 - "Machine sequenced", the information exchanged is sequenced by the computers at both ends (Did you make this contact or did the computers?)
 - No opportunity for conversation to find out more about the ham at the other end

This presentation will cover these topics

- Survey of popular Digital modes
- How to get started with the Digital modes
- Winlink and VARA
- The dedicated chat apps: JS8call and VarAC
- Activities
- Review of VarAC

Keyboard Digital modes

- There is a trade off in speed versus robustness
- Here are the popular digital modes in order of increasing robustness and slower speed
 - RTTY
 - PSK31
 - Domino
 - Contestia, Thor and MFSK
 - Olivia

RTTY description

- The Granddaddy of the digital modes
- RTTY is one of the oldest digital modes
 - Remember Western Union?
- Until recently hams used surplus commercial teletype machines with roll paper, ribbons and paper tape. They were noisy.
- Now RTTY can be used silently

RTTY characteristics

- Uppercase only
- No error correction
- No backspacing for corrections
- "Real time" communications, characters are sent as they are typed

RTTY comments

- Propagation for RTTY is almost as good as CW
- Narrow bandwidth
 - Standard bandwidth is 170 Hz
- No random RTTY CQing or random conversations
- But RTTY is very popular for contests
 - During the major RTTY contests, the most of the CW subband on 80, 40 and 20 is filled with RTTY
- In my opinion, with its simplicity, this is a good mode to get started with digital

PSK31 description

- PSK31 is a modern digital mode
- In the past was more popular than RTTY
- The first new digital mode

PSK31 characteristics

- Narrow bandwidth
- Upper and lower case
- Can do backspacing to make typing corrections on the fly
- No error correction
- "Real time" communications, characters are sent as they are typed

21 September 2022 Membership Meeting ~ Minutes, cont'd

Domino

- A moderately fast mode, with in-line error correction
- Has all of the features of a modern digital mode
 - Upper and lower case
 - Backspacing allowed to correct typing errors
 - Has in-line error correction, but not Forward Error Correction
 - Very tolerant of off-frequency tuning
 - Almost "Real time" communications, characters are sent after a short delay
- Rarely used for QSOs
- This is my favorite mode for local QSOs where there is a moderate to good path

Contestia, Thor and MFSK

- Contestia, Thor and MFSK are only used for traffic nets
- These are robust modes, but slow
- Contestia only has upper case
- MFSK signals must be tuned precisely
- All of these modes have forward error correction
- Characters could have a 5 to 10 second delay before being sent
- I have never seen a random QSO with any of these three modes
- For more information
 - <http://www.oliviamode.com/Contestia.htm>

Olivia

- The most robust digital mode designed for keyboard to keyboard QSOs
- It has Forward Error Correction
- Can decode below the noise level
 - Olivia 500/16 can decode down to -13 dB
- The tradeoff is slow performance
 - Long time to switch from transmit to receive and vice-versa
 - Could take 20 to 40 seconds
- Has all the features of a modern digital mode
 - Upper and lower case
 - Ability to backspace to make typing corrections (the transmission speed is so slow, you usually can make the typing correction before the text is sent)
- I have seen and participated in random Olivia CQs

Other modes - Hellschreiber

- Hellschreiber technically is not a digital mode
- It is a FAX-like mode where audio tones are used to send an image of a character
- It's an old mode, dating from the 1930's, originally designed to print on a strip of paper
- It has upper and lower case
- No ability to make typing corrections
- Surprisingly robust because we can use our eyes to fill in the errors
- Fun mode to demonstrate

Winlink

- Winlink is an e-mail client for the PC
 - It generates and receives e-mail messages
- Winlink has the ability to connect to devices or apps which can send and receive email via radio
 - Pactor hardware modems had been used to control the radio
 - Now, a new high-speed software app called VARA can be used instead of the Pactor modem
- VARA has new features not in the traditional keyboard to keyboard modes
 - **Handshaking.** VARA segments the file to be sent into pieces and waits for an acknowledge of receipt of the previous piece before sending the next piece. This guarantees 100% copy.
 - **Variable speed.** VARA will vary its speed based on the signal path. It will slow down for poor paths and will speed up for very good paths.

Chat applications

- There are now two popular chat applications
 - JS8Call
 - VarAC
- These two apps have a very sophisticated user interface and use existing data transmission apps to control the radio. The intent is to make the data transmission and receiving transparent to the user
 - JS8Call uses FT8
 - VarAC uses VARA
- Easy to find activity: dedicated "watering hole" frequencies for each of these

JS8Call

- Uses the FT8 mode for data transport
- Very robust, but slow
- Transmitting and receiving periods based on the clock time, just like FT8
- Computer must be synchronized to correct time
- I have not used this chat app so I am not able to make any comments about it

VarAC

- Brand new chat application, First non-Beta release was August 1, 2022
- Uses VARA for data transmission
 - VARA uses handshaking to get 100% copy
 - VARA can vary the transmission speed
- Does not need computer clock to be precise
- My impressions
 - Looks intimidating, but is actually easy to use
 - For example, to respond to a CQ, just click on the call in the CQ box
 - Data transmission during chat is transparent. No user intervention required, but it has windows to show you what is being transmitted or received
 - Had a 1 hour chat with a ham in California at midnight on 40M. 100% copy for the duration of the chat. Both of us were using 100 watts and wire antennas.

Billerica 2M Repeater Report—Antenna Upgrade

Bob DeMattia, K1IW—Technical Officer

When the MMRA inherited the Billerica 147.12/W1DC repeater from the 1200 Radio Club (with mostly ex-Honeywell employees) in the summer of 2021, the

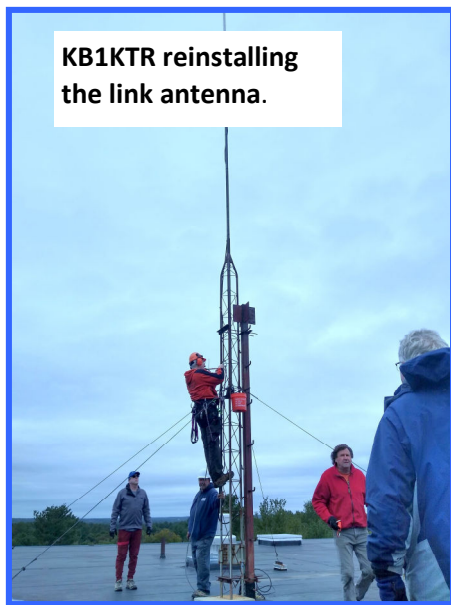


MMRA decided to bring the repeater up to the current MMRA standards. The repeater is in a commercial building at 300 Concord Road.



The repeater itself was upgraded in April 2022 along with a new link antenna, however the main antenna was still a 40-year-old Stationmaster and had “issues.” A project to replace this antenna was put into place shortly after the repeater electronics were installed, hopefully to be accomplished in one day.

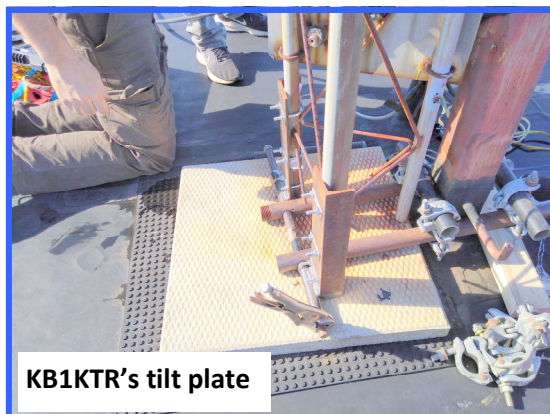
KB1KTR reinstalling the link antenna.



On 4 October at 8 AM the crew showed up: Bob, K1IW; Mike Antoine, K1UVH; John Morley, W1NI; Steve Lively, AF1SL; John Nitzke, KF1KI; Howard Shpegel, AC1MN; Mike Rioux, W1USN; and Kevin Fallon KB1KTR. As happens with many projects, the task was much larger than estimated. The new antenna was not installed, but significant progress was made by removing all the “dead wood” from the tower. After a long discussion, it was decided that the best option is to remove the

tower and replace it with a monopole (antenna mast). This is a simpler design and will also remove the need for the guy wires.

Early on 27 October the crew arrived again. The old 19’ length of Rohn-25 was taken down. The new structure is an 18-foot monopole with a DB224E antenna. To lower



KB1KTR's tilt plate

Billerica 2M Repeater Report—Antenna Upgrade

Bob DeMattia, K1IW—Technical Officer

the tower, club member KB1KTR fashioned a tilt-plate. The plate bolted to a 4x4 steel beam on the roof which runs alongside the tower and is part of the frame of the building. With two of the tower legs bolted to the plate, the top of the tower is lowered with proper rigging lines until it is in a horizontal position. Once done, the antenna was removed and the tower was safely



The new tower and antenna

disassembled on the roof. Raising the new monopole is the reverse process. With the base of the monopole attached to the tilt plate, rigging lines are attached and the new antenna is raised into place. Once vertical, the pole is attached to the 4x4 steel beam using Unistrut assemblies. Turn the repeater back on and 147.12 is back in business.



The new antenna and monopole support are assembled and ready to go on the roof.

Many thanks to Kevin, KB1KTR for fabricating the tilt plate, supplying all the rigging equipment, and doing the climbing work. Also thanks to Howard Shpegel AC1MN, and John Morley W1NI who volunteered for seven hours of roof work to get this done.

Prudential Antenna Move

Bob DeMattia, K1IW—Technical Officer

Sometimes we run into unexpected expenses. Our Boston 2M repeater is on top of the Prudential Center. This is a key repeater for us. For example, it was used for the last eight aid stations at the marathon. The Head of the Charles also uses this system.

New FCC rules for RF exposure forced the Pru to relocate many antennas on the roof, including ours. As it didn't make sense to keep the ~ 10-year-old amateur-grade antenna, and a 4-bay dipole exceeds the allowed height, we are using a shorter 2-bay. The old location was on the North side of the building on the roofline, obstructed by the penthouse and other structures located on the roof. The new location is about twenty feet higher than the old and is less obstructed in all directions, especially South.

Thank you to all the members who participated in the vote to approve the money for the antenna move. The final vote to cover the labor for the move passed 125-3. We expect the move to happen by the end of November.

19 October Business Meeting ~ Minutes

Called to order @ 7:38 PM at New England Sci-Tech and ZOOM.

10 Meter Repeater: - Receiver in Weston - As said previously, Larry Banks – W1DYJ – has been testing the 10m repeater with mixed results. Kevin Paetzold – K1KWP – when transmitting to the repeater, if not used for a long time, there is a long delay to initiate. In regular use it seems to work fine. Perhaps that is the intermittent behavior being experienced. There also may be a loose connection not to mention the age of the Cushcraft Ringo antenna that may or may not need to be replaced. With the improving sun spot cycle, Dave checking the previous Minutes for more than a year and no recent physical onsite inspection, it appeared that we want to resolve this before the winter sets in. Bob DeMattia – K1IW – will be contacted. He was unable to attend this meeting.

Weston: New 2m Kenwood and amplifier are here. Setup will be forthcoming.

Billerica Antenna Install: Based on emails only the main antenna and the link antenna remain. The DB224 was brought up to the “penthouse” so it can be ready to install. Howard Shpegel – AC1MN – attended a Zoom Meeting call hosted by Bob as he was one of the volunteers at the Billerica site. The best option decided upon is to remove the tower and install a piece of Unistrut to the existing iron mast. Two things will result: no need for guy wires and in a slight loss in height of the antenna.

North Reading: DR2X malfunctioned, a repeat from 2 years ago, had to be reset by a power cycle done locally. Bob installed a Kasa Smartswitch so he can reset it remotely in the future.

Prudential Antenna Move: With Bob not being present to provide the most up to date news, the discussion was based on emails and other prior oral communications. The antennas themselves and duplexer have already been purchased. The \$3,000 is for the labor involved to move the antenna to the other side of the building and comply with the new FCC emissions safety requirements. The vote by the Board was unanimous for up to \$350 can be spent for the purchase of one 15’ mast and 7/8EIA flange to N adapters in order to utilize the existing cable. The \$3k expenditure must receive a vote by the membership who will receive their voting ballot by email for their response.

All other MMRA Repeater systems normal.

Other Repeater News: Roger Coulson – WA1NVC – mentioned the Repeater on Mt Wachusetts is active with a stronger signal. It is on 53.31 Mhz, PL 71.9 and a -1 Mhz offset.

Newsletter: Deadline to Larry is Friday October 28th. Email W1DYJ@mmra.org .

Upcoming Meetings

November 16, 7:30 pm – Build a 10-meter Moxon Antenna

John Portune – W6NBC

New England Sci-Tech & Zoom Teleconference

December 21, 7:30 pm – Business Meeting

New England Sci-Tech & Zoom Teleconference

January 18, 7:30 pm – The "New" FCC RF Exposure Rules: A Practical Methodology

Larry Banks – W1DYJ

TBD & Zoom Teleconference

February 15, 7:30 pm – Business Meeting

TBD & Zoom Teleconference

19 October Business Meeting ~ Minutes—cont'd

March 15, 7:30 pm -AREDN Michael Ford – WZOC (tentative)

April 19, 7:30 pm – Business Meeting

Tuesday night, 8:00 pm (year long)

Technical, Information and Other Stuff Net

MMRA Linked Repeaters

Meeting Attendees - At New England SciTech

Daniel McEleney, AC1JL; Deborah Horton, N1NVJ; Ken Horton, KA1GFN;

Bob Phinney, K5TEC; & Stephen Babbitt, KC1LPZ

Zoom Meeting Attendees:

Dave Hornbaker, K1DCH; Kevin W Paetzold, K1KWP; Jason Peardon, W1HFP; Roger Coulson, WA1NVC;

Ed Curley, KC1CLA; Larry Banks, W1DYJ; Jonathan Traum K1BTZ; Howard Shpegel, AC1MN

Meeting Adjourned at 8:37 PM

Respectfully Submitted by Stephen M Babbitt – KC1LPZ – Clerk

Treasurers Report ~ Kevin Paetzold, K1KWP

The MMRA receives a significant amount of donations each year. On behalf of the club I would like to acknowledge and thank people below who donated since my list in the May newsletter: **AB1HO**, **AB1II**, **KA1UVN**, **KD1JL**, **KD1LV**, **KD1TE**, **N1HBR**, and **WG1V**. Hopefully I did not leave anyone off (and if I did I am sorry).

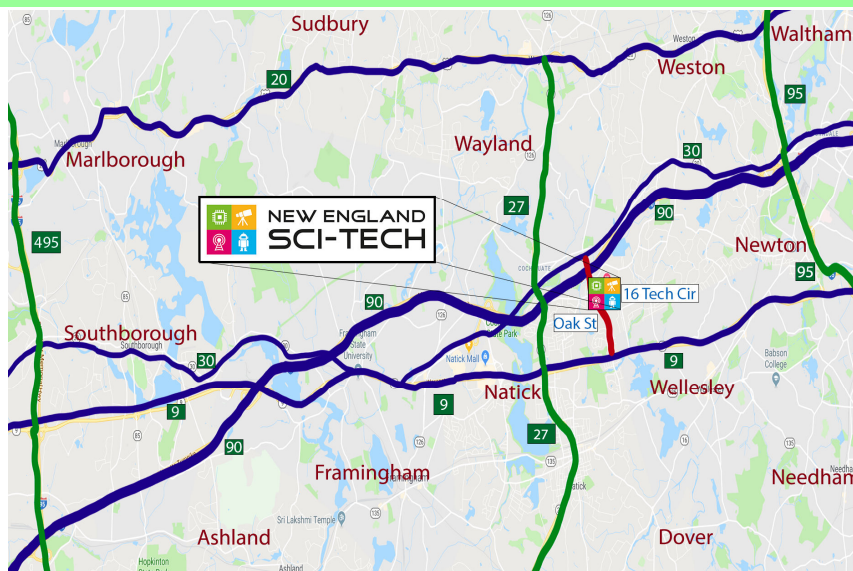
73, K1KWP

Directions to New England Sci-Tech Inc. 16 Tech Circle Natick MA 01760

From the north: take Rt 95 or Rt 27 or Rt 495 south to Route 30 toward Wayland. Once in Wayland, turn South on Oak Street and in 1/2 mile look for Tech Circle on your left. Follow Tech Circle to the end.

From the south: take Rt 95 or Rt 27 or Rt 495 north to Route 9 toward Natick. At the Wellesley-Natick line, turn North on Oak Street and in 1/2 mile look for Tech Circle on your right. Follow Tech Circle to the end.

From the east or west: follow either Rt 30 or Rt 9 toward Natick, turn onto Oak Street at a set of traffic lights, and in 1/2 mile look for Tech Circle. Follow Tech Circle to the end.



Upcoming MMRA Meetings

Note: Meeting locations and times are subject to change.

Consult the MMRA website for the most up-to-date information. ZOOM

Teleconference login info is available

once you log into your account on MMRA.ORG

Non-members: if you wish to attend, email contact@mmra.org.

Wednesday, 16 November – Membership Meeting ~ 7:30

Location: New England Sci-Tech + Zoom Teleconference

Topic: 10M Moxon Antenna — John Portune, W6NBC

Wednesday, 21 December – Business Meeting ~ 7:30

Location: New England Sci-Tech + Zoom Teleconference

Wednesday, 18 January – Membership Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Topic: The “new” FCC RF Exposure Rules— Larry Banks, W1DYJ

Wednesday, 15 February – Business Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Wednesday, 15 March – Membership Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Topic: AREDN: aka. The Amateur Radio Emergency Data Network

Michael Ford, WZ0C

Wednesday, 19 April – Business Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Wednesday, 17 May – ANNUAL Membership Meeting ~ 7:30

Location: TBD + Zoom Teleconference

Topic: Elections + TBD

Don't Forget! Join Us.

Every Tuesday @ 8 PM

Technical, Informational and Other Stuff Net

The MMRA's repeaters are linked Tuesday nights for the TIOS Net. Keep up with what's happening in the MMRA and ask your ham related questions.

Net Control Operators:

Week 1	W1DYJ	Larry Banks
Week 2	KB1OQA	Tom Turner
Week 3	KC1CLA	Ed Curley
Week 4	K1KWP	Kevin Paetzold
Week 5	K1BTZ	Jonathan Traum

To connect using Echolink during the Net:

- Echolink Conference *NEW-ENG2*

NOTE: we need another NC to be available as a substitute. If you are interested, email W1DYJ@mmra.org

MMRA Leaders

Executive Board — Officers

President	Dave Hornbaker	N1DCH
Vice President	John Spencer	WA1MDD
Secretary	Jason Peardon	W1HFP
Treasurer	Kevin Paetzold	K1KWP
Clerk	Stephen Babbitt	KC1LPZ

Executive Board — Directors

Director »2023	Bob DeMattia	K1IW
Director »2023	Roger Coulson	WA1NVC
Director »2024	Rob Evans	N1BE
Director »2024	James Lee	N1DDK

Technical Officer

Technical Officer	Bob DeMattia	K1IW
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President Emeritus

Bob DeMattia	K1IW
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Technical Officer Emeritus

Bryan Cerqua	W1BRI
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Repeater Trustees

Belmont 145.43	Ed Curley	KC1CLA*
Billerica 147.12	Mike Rioux	W1USN*
Boston 146.82	John Mullaney	K1BOS*
Boston 927.0625	Rick Zach	K1RJZ*
Brookline 145.16	Joyce DeMattia	K1MRA*
Brookline Rcv 146.82	Bob Phinney	K5TEC*
Burlington 224.88	Bruce Pigott	KC1US*
Hopkinton 449.575	Bryan Cerqua	W1BRI*
Marlborough 53.81	Bryan Cerqua	W1BRI*
Marlborough: 29.68, 144.39, 147.27, 223.94, 448.225, 449.925, 927.70 Lowell 442.25		
all as W1MRA	Bill Northup	N1QPR*
Mendon 146.61	Kevin Paetzold	K1KWP*
N. Reading 146.715	Bruce Pigott	KC1US*
N. Reading 446.775	Larry Banks	W1DYJ*
Quincy 224.40	Bill Dunn	N1KUG*
Quincy 146.67	Bryan Cerqua	W1BRI*
Weston 146.79	Rob Evans	N1BE*
Weston 224.70	Eddie Mulhern	N1NOM*
Weston 442.70	Dave Hornbaker	N1DCH*

Additional, non-Voting

Newsletter Editor	Larry Banks	W1DYJ*
Emerg. Coord.	Kevin Paetzold	K1KWP*
Pub. Serv. Coord.	Bruce Pigott	KC1US*
VEC Liaison	Ron Rothman	WO1E*
Net Manager	Larry Banks	W1DYJ*
Web Page Editor	Bob DeMattia	K1IW*
Social Media Coord.	Steve Umans	K8ZBE*

* Appointed

Contacting the MMRA



Members: mmra@groups.io

Note: This may take some time.

You must be approved by the moderator.

Officers: contact@mmra.org

Control Ops: control-ops@mmra.org



<http://www.mmra.org/>



<https://www.facebook.com/mmraham>

MMRA VE SESSIONS

Check out <https://www.mmra.org/exam.html> or email ve@mmra.org

Ask your friends to become a member Just let them know that it is not fully automated. Although they can log into the MMRA website immediately, they need to be manually processed. This could take up to a week.

If you haven't updated your MMRA profile in a while,
now is the time!

Go to < MMRA.ORG > and log in to do so.

Previous issues of the MMRA Newsletter are available
at: www.mmra.org > [Newsletter Archive](#) (on the left)

Heavy Hitters Traffic Net

This net is active on our repeaters Sunday to Friday evenings from 10—11 PM. Active repeaters are:

2m: Mendon (146.61), Quincy (146.67), North Reading (146.715), Boston (146.82), and Marlborough (147.27)

220: Marlborough (223.94), Quincy (224.40), Weston (224.70), and Burlington (224.88),

440: Lowell (442.25), North Reading (446.775), Hopkinton (449.575), and Marlborough (449.925)



NEW ENGLAND SCI-TECH

New England Sci-Tech Inc is a new 501(c)(3) STEM education center, amateur radio training center, and maker space located at 16 Tech Circle, Natick. It is home to New England Amateur Radio Inc (NE1AR) and the youth radio club Sci-Tech Amateur Radio Society (STARS). NE Sci-Tech welcomes memberships and donations via www.NESciTech.org or www.NE1AR.org.

Get connected on the MMRA Repeater System ~ Dave Hornbaker N1DCH

What is the best way to get connected on the MMRA repeater system? Try announcing yourself! Just say your call sign followed by "listening". If you want, you can include the last 3 digits of the repeater frequency. For example, "N1DCH listening" or maybe "N1DCH listening on 925", you may very well get a response. Try to connect by announcing yourself several times.

Most of the time, Marlborough Hub1 (449.495) is linked to the following repeaters, Boston (146.820), North Reading (446.775), Mendon (146.610), Lowell (442.250), and Hopkinton (449.575). Remember that when the repeaters are linked, you need to wait two or three seconds after you key up and before you speak. This is especially important on the TlaOS net on Tuesday when most of the repeaters are linked.

You can also link (and delink) the repeaters yourself. See the information you received when you became a member, or check the [User Control Codes](#) once you log into the MMRA web.

Try one of the non-linked repeaters too. There are Hams monitoring them as well. For more information on the repeater network and how it is linked at various times, check out https://mmra.org/repeaters/repeater_linking.html.